LINCOLN LANCASTER COUNTY HEALTH DEPARTMENT

The Ethic

Pollution Prevention
The Environmental Ethic of Lancaster County

Please circulate this issue among your staff and coworkers.

Spring 2003

The P2 Corner

Paint Solvents:

Reducing Exposure to the Public and Employees in Grocery Stores During Electro-Painting of Metal Display Cabinets

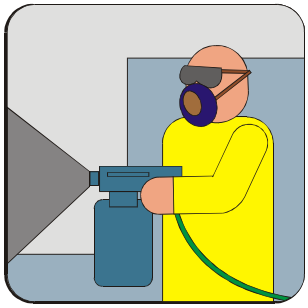
Mike Holmquist, Senior
Environmental Health Specialist

Painting surfaces, preparing surfaces for painting, removing paint, or cleaning up after a paint job can produce air pollutants. Many people are sensitive to them. Even if a person is not sensitive, prolonged exposure to high concentrations can cause short-term illness or long-term serious health risks. However, there are ways to reduce or prevent the harmful pollutants.

On July 24, 2001, at 10:30 p.m., the Lincoln–Lancaster County Health Department (LLCHD) responded to a complaint of a strong solvent paint odor in a local grocery store. Upon arrival, the response team noted elevated airborne concentrations of flammable volatile organic solvents (VOCs). A contractor had been hired by the grocery chain to paint the metal ends and bodies of their food coolers and food storage cabinets. A process called *electro-painting* was being used to apply a paint with a solvent content of about 60%.

The response team found that the contractor did not isolate the work area or provide ventilation or control of the solvent vapor in a safe manner. In addition, the public was allowed near the work area. The Lincoln Fire Department and LLCHD shut down the project pending a review of the paint contents. It was also necessary to test exposed food packaging and review of employee and customer health complaints.

The LLCHD sent the business a letter detailing the requirements for safe use of the paint indoors. To paint safely indoors, the public could not be in the store when painting is occurring. Further, the painting area must be confined and directly vented to the outside. All food



in the area must be removed from shelving to ensure there would be no contamination from airborne solvent. In addition, the contractor must seek a safety evaluation of his business from the Nebraska Department of Labor (contact Mr. Bill Taylor) and the NDOL's Small Business Assistance Program.

Subsequent to this event, the contractor and the grocery chain suspended the project. In November of 2002, the grocery chain contracted with a new contractor located in Kansas who specializes in electro-painting, painting in grocery stores across the nation. The owner was aware of the events on July 24, 2001. He asked that the LLCHD review his paint, which he identified as low-VOC, and determine if he would be under the same restrictions regarding painting in the grocery store chain as the prior contractor. Upon review of the Material Safety Data Sheet (MSDS) the LLCHD determined that his product was, in fact, not a low-VOC product. It still tested in the range of 60%

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Lincoln-Lancaster County Health Department
3140 N Street
Lincoln, NE 68510-1514

Public Health Starts Here.

The Ethic is published quarterly by the Lincoln-Lancaster County Health Department and is distributed to Special Waste Permit holders and other businesses in Lincoln and Lancaster County.

For more information or for P2 technical assistance, call 441-8040.

http://www.ci.lincoln.ne.us/city/health/environ/pollu/

Bruce Dart, MS ..... Health Director
Phil Rooney, Ph.D. ..... Editor/Layout

PAINT (CONTINUED FROM PAGE 1)

VOC, like the original paint, and contained a number of hazardous ingredients.

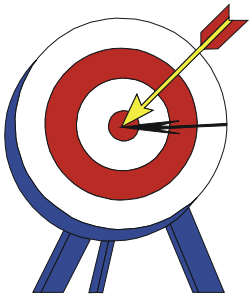
The LLCHD air quality staff sought out a definition of "low-VOC" and determined that several government contracting agencies (Aberdeen Proving Ground; Department of Defense; South Coast Air Quality Management Board, California) have defined low-VOC to mean that the VOC content must be less than approximately 10% of the total weight of the paint. The LLCHD also found that a number of paint manufacturers now produce near zero VOC paints for applications such as metal cabinets. These paints meet or exceed American Society for Testing and Materials (ASTM) standards for criteria such as durability, scuff resistance, and scrub toughness.

The LLCHD provided a list of manufacturers to the paint contractor. The contractor tried several water-based urethane paints on sample cases and will now be using this type of paint nationwide. The benefits are numerous and include greatly reduced human exposure hazards to his workers and to the public, near zero VOC emissions to the atmosphere, nonflammable, little or no hazardous waste, economical application method that reduces the amount of paint needed, and little or no disruption of store business during application.

The contractor estimates that his company uses 25-50 gallons of paint in each store and might paint as many as 200 stores a year. These figures indicate that, by changing paint and the painting process, his company alone would reduce the amount of solvent that would have gone into the air by 35,000 to 70,000 lbs. per year. That is a significant reduction of air pollution and environmental hazards. These steps make the site safer for painters, store staff, and customers.

IMPROVEMENT THROUGH TEAMWORK

A word that is currently gaining in popularity in business circles is *kaizen*. *Kaizen* is a Japanese word that means "continuous improvement." In the business world, this word implies improvement achieved by the cooperation and involvement of everyone in the workplace.



Like Continuous Improvement, kaizen is a gradual, continuous process. There is no magic level at which one achieves ultimate improvement. Businesses must constantly strive to change and get better. (In Japan, kaizen is not limited to business improvement but applies to personal and social situations as well. For more information visit the *kaizen* website at *http://www.kaizen-institute.com/kzn.htm* or read *KAIZEN, the Key to Japan's Competitive Success* by Masaaki Imai.)

To help businesses achieve continuous improvement in environmental issues, the Nebraska Business Development Center (NBDC) offers "The Environmental Kaizen." According to the NBDC website, "The environmental kaizen draws together a multifunctional team of 10–15 full-time employees and immerses them in a week-long waste reduction effort. The kaizen not only produces a plan for solutions, but will implement that plan and create a foundation for a continuous improvement process."

This weeklong exercise teaches the tools a business needs to analyze and monitor success. It focuses on activities that reduce waste, improve production efficiencies, and assist in make wise purchasing decisions.

For more information contact Patrick Defebaugh, Nebraska Manufacturing Extension Partnership, (402) 472-1183 or email *pdefebaugh@mail.unomaha.edu.* You can also visit the NBDC website at *http://www.nbdc.unomaha.edu/lean/P2kaizen.cfm*.

BEL Made Me Money

George Witt, George Witt Service, Inc.

Businesses for Environmental Leadership (BEL) has been a resource for my auto repair shop. Membership in that organization and the support and advice I receive from other members and resource agencies help me in two ways: decreased expenses and increased sales.

A waste audit showed we could recycle more solid wastes such as metal, cardboard, paper and plastics. We placed containers throughout the shop, and the technicians tossed anything metal in them: spark plugs, brake rotors, suspension parts, and mufflers. These items went into the back of a pickup truck awaiting transport to the metal recyclers.

We contracted with a recycling service to pick up cardboard, paper, aluminum, and plastics. The net result was a reduction of over 12,000 pounds a year in solid waste that used to go to the landfill. We used to have our dumpster serviced twice a week, now it's not even half full after a week. We reduced our operating costs and generated revenue from the scrap metal.

As a result of our involvement with BEL, we now have a new marketing tool with the public. Many consumers, when offered a choice, will patronize those businesses who are more environmentally responsible, if they know who they are. We send out 5000 newsletters about 8 times a year. We've made it a point to inform our customers and the public about our environmental efforts and proudly proclaim our repair shop to be the *undisputed* cleanest shop in the city.

Our commitment to the environment has brought positive comments from many of our customers. I believe this has had a positive effect on sales.

We win, our bank account wins, the public wins, the landfill wins, and, most importantly, the environment wins. I'm glad we're in the program.

For more information, contact George Witt, George Witt Service, Inc., 3341 N. 35th St., Lincoln, NE, 68504. (402) 434-6961. *www.georgewitt.com*.

The Material Safety Data Sheet—part one

Bill Lyons, Environmental Health Specialist II

The Material Safety Data Sheet (*MSDS*) is designed to provide workers and emergency personnel with important information that could save lives. An MSDS is supplied by the manufacturer of a chemical or product (such as a cleaning solvent or paint). Copies of MSDSs of all products used by a business should be on file in a prominent location. They must be available to all employees and emergency response teams.

There is no universal format for what an MSDS will look like. However, all MSDSs should identify the chemical's or the product's physical data (its melting point, boiling point, flash point, etc.), toxicity, reactivity, and health effects. MSDSs should describe proper storage, disposal, and handling procedures. They include information about what personal protective equipment (*PPE*) is required of workers and response personnel and the first aid procedures to follow in case of exposure.

What's in it

Knowing the chemicals and the ingredients in a product will help workers report problems. If emergency response teams have to deal with a spill or leak, they will need to know what chemicals are on site. An MSDS provides the name of the main chemical or chemicals in a product. Sometimes these chemicals are given trade names, and generic or common names will also be included on the MSDS. When in doubt, employers and workers can research the chemical using the information on the MSDS.

One important source of chemical information is the Chemical Abstracts Service Registry Number (*CAS number*). This is a universal code by which any chemical can be identified and classified. Manufacturers might include a product number that is unique to their company or other identifying numbers on an MSDS. These allow anyone to find the chemical and learn more about it in one of several chemical registries.

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MSDS

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The MSDS will also include information about the manufacturer. This information allows anyone to call the company to find out more about the chemical.

Shorthand

Because MSDSs contain a large amount of information in a limited space, they often rely on definitions and acronyms. Like the CAS number, these are universally known and understood by emergency personnel and environmental health specialists and regulators. Workers who regularly work with these products and first aid providers in the shop should also know the acronyms and definitions.

Acronyms and definitions can be researched on the internet. One excellent website is *http://www.denison.edu/sec-safe/safety/msds/terms.shtml*. Information can also be found in books and reference materials distributed by the United States Environmental Protection Agency (USEPA), the Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH), and National Fire Protection Association (NFPA) among others. Businesses in Lancaster County, Nebraska, can call the Lincoln–Lancaster County Health Department (LLCHD) at (402) 441-8040.

How to handle it

Because a business often must use hazardous products to do the job, workers need to know how to handle those materials safely. The portion of an MSDS that describes safety measures gives information about the proper procedures for handling or working with a particular substance both normally and in case of an emergency.

The process of handling materials includes all steps from the truck to the shop floor and out the back door. Whenever a container of material is moved from the delivery truck or from place to place in the shop, poured into another container, used in a work process, or ultimately discarded certain safety precautions must be followed. Perhaps workers handling the material must wear specific PPE such as goggles, gloves, respirators, protective suits, or boots. In some cases the PPE can be simple and basic. When handling other materials, workers might need to wear more specialized safety gear. Perhaps workers will need high level training to use the proper equipment. The MSDS for a given material will describe the safety equipment requirements.

The MSDS will also describe the requirements and terms of transporting the material. Some materials must be transported in special containers on special vehicles.

Some materials must be stored in carefully designed and controlled environments. The material might have to be stored in a fire proof, enclosed area with a dedicated fire suppressant system. Certain chemicals should not be stored together because, in case of a leak, they might react and form a poisonous vapor or explode or ignite. The directions and specifications for storage are clearly described on the product's MSDS.

In case of a fire, some materials should not be exposed to water. Foam fire suppressant might be necessary. Many chemicals have certain heat tolerances. They must be kept in a facility within a certain temperature range. Some need to be refrigerated. The walls of the storage area might need to be specially insulated or fire proofed. It often is wise to use a security system to limit access to materials to authorized employees. The MSDS will help you make informed decisions.

Sources for information

The next issue will contain more information about MSDSs. The agencies listed earlier in this article will provide information about the MSDS. The manufacturer of a product is a good source for information about the chemical and its MSDS.

One excellent internet resource for information about MSDSs and links to MSDS sites is http://www.denison.edu/sec-safe/safety/msds/msds.shtml#list. There are many other sites also. You can also call the Lincoln-Lancaster County Health Department with specific questions. Call Bill Lyons at (402) 441-8641.